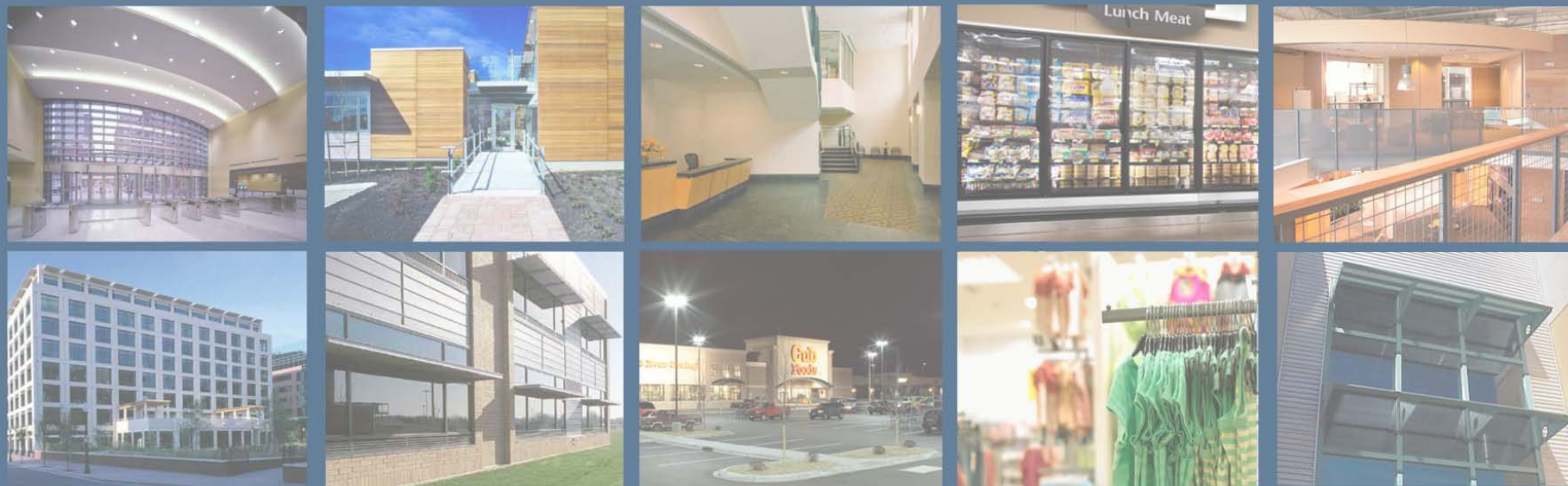


Lighting and Controls in Retail — Retailer Energy Alliance



Lighting and Controls Supplier Summit
Las Vegas, Nevada
May 11, 2010

Ralph Williams, P.E., CEM
Engineering Manager
Walmart Stores, Inc.

Commercial Building Energy Alliances

- The goal of this program is to ***minimize the energy use and environmental impact of commercial buildings***
- The central vision of the Building Technologies Program is the ***realization of marketable net-zero energy buildings*** through the development of conservation technologies and practices

Who Are We?

Retailer Energy Alliance Members

Retailers

- A&P
- Applebee's International, Inc.
- Army & Air Force Exchange Service
- Bank of America
- Belk, Inc.
- **Best Buy Co., Inc.***
- BJ's Wholesale Club, Inc.
- Boston Market Corp.
- Chipotle Mexican Grill, Inc.
- CKE Restaurants, Inc.
 - Includes: Carl's Jr., Hardee's, Green Burrito, Red Burrito
- Costco Wholesale Corp.
- Crate and Barrel
- **Food Lion, LLC***
- Ford Motor Co.
- Harris Teeter Inc.
- **JCPenney***
- John Deere
- **Kohl's Department Stores***
- Lamey-Wellehan Shoes
- **Lowe's Companies, Inc.***
- Macy's, Inc.
- **McDonald's Corp.***
- OfficeMax Inc.
- Panda Restaurant Group, Inc.
 - Includes: Panda Express, Panda Inn, Hibachi-San
- PETCO Animal Supplies, Inc.
- ProLogis
- Publix Super Markets
- Recreational Equipment, Inc.
- Rutter's Holdings, Inc.
- Safeway Inc.
- Sears Holdings Corp.
- Sonic Corp.
- **Staples, Inc.***
- SUPERVALU INC.
- **Target Corp.***
- **The Home Depot, Inc.***
- The Stop & Shop Supermarket Co.
- Toyota Motor Sales, U.S.A., Inc.
- Walgreen Co.
- **Walmart Stores, Inc.***

- Wawa, Inc.
- Wendy's/Arby's Group, Inc.
- **Whole Foods Market, Inc.***
- **Yum! Brands***
 - Includes: **A&W Restaurants, KFC, Long John Silver's, Pizza Hut, Taco Bell**

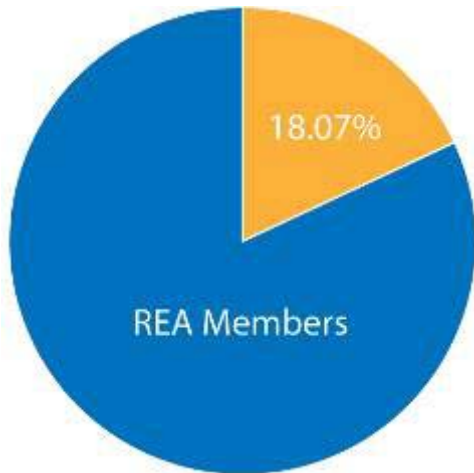
Associations

- **ASHRAE***
- **IES***
- IFMA
- National Association of Convenience Stores
- Retail Industry Leaders Association
- Unified Foodservice Purchasing Co-op, LLC

** Steering Committee Member*

Market Share of REA Members

Retailer Energy Alliance



- 50 member companies
- 2,548 million sq. ft.



Commercial Building
Energy Alliances

- Access to **DOE and the national energy laboratories' expertise**
- **Share information on successful energy-efficient lighting/control products and strategies.**
- Provide a **consistent message** to national manufacturers and distributors
- Provide **greater consistency in energy-efficiency program design**

The Retailer Energy Alliance (REA) subcommittees:
Subcommittees form working groups with members from the alliances

- ***Lighting Subcommittee***: Members are working to ***develop more cost-effective and high-quality light-emitting diodes (LEDs)*** for interior and exterior store lighting and parking lot lighting. In addition, members are working to ***improve the energy efficiency of other electrical equipment and plug loads.***
 - ***CBEA LED Site (Parking Lot) Lighting Performance Specification***
 - High Efficiency Lighting for Parking Structures Performance Specification
 - Lighting Measurement and Evaluation Protocol Document
 - CBEA LEDs for Refrigerated Display Cases Lighting Specification

- **Objective:** To speed the market introduction of advanced, reliable, efficient, and competitively priced outdoor area SSL luminaires through a collaborative CBEA project designed to
 - Investigate the field and laboratory performance of luminaires
 - Investigate the life and reliability issues of luminaires
 - Develop product specifications and evaluation procedures for use in bid specifications
 - Maximize the sales of “selected” products

Why LEDs Make Sense for Commercial Parking Lots

- Save energy
 - Enhanced luminaire optical efficiency
 - Better total system efficacy (lumens per watt)
 - Control capability (e.g., dimming)
- Reduced maintenance costs
- Improved uniformity
- Environmentally friendly



The Lowe's Retrofit Site

- 2,170 watts of Metal Halide HID vs. 406 watts of LED
- 80% power reduction



HID in foreground, LED beyond ... notice the reduced glare from the LEDs



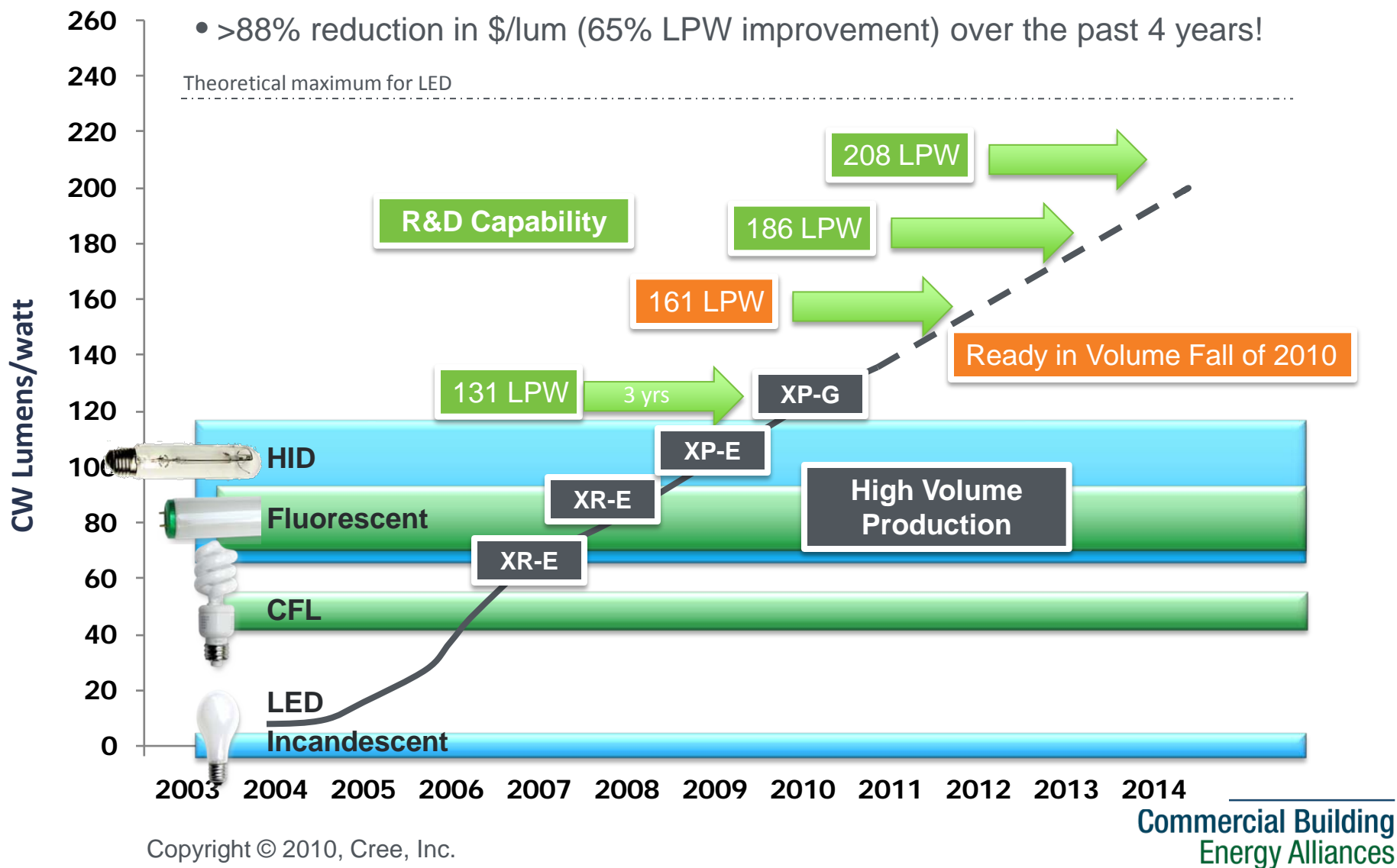
LED in foreground, HID beyond ... notice the reduced glare from the LEDs

LED Is Currently a 3–7x \$ Premium

Barrier today is simple — ROI. However, the future looks “bright.”

<u>Fixture type</u>	<u>Today</u> Initial lumens	<u>2015</u>
220 W LED 	~\$0.09/lum fixture lpw = 57	~\$0.06/lum ↓ 100–125 lpw ↑
454 W MH 	~\$0.008/lum fixture lpw = 51	minimal change
1080 W MH 	~\$0.004/lum fixture lpw = 80	minimal change

White LED Efficacy Forecast



Avoiding 'Greenwash'



1. Fluffy language

Words or terms with no clear meaning, e.g. 'eco-friendly'



2. Green products v dirty company

Such as efficient light bulbs made in a factory which pollutes rivers



3. Suggestive pictures

Green images that indicates a (un-justified) green impact e.g. flowers blooming from exhaust pipes



4. Irrelevant claims

Emphasising one tiny green attribute when everything else is un-green



5. Best in class?

Declaring you are slightly greener than the rest, even if the rest are pretty terrible

6. Just not credible

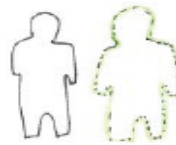


'Eco friendly' cigarettes any one? 'Greening' a dangerous product doesn't make it safe



7. Gobbledygook

Jargon and information that only a scientist could check or understand



8. Imaginary friends

A 'label' that looks like third party endorsement ... except it's made up



9. No proof

It could be right, but where's the evidence?

10. Out-right lying

Totally fabricated claims or data



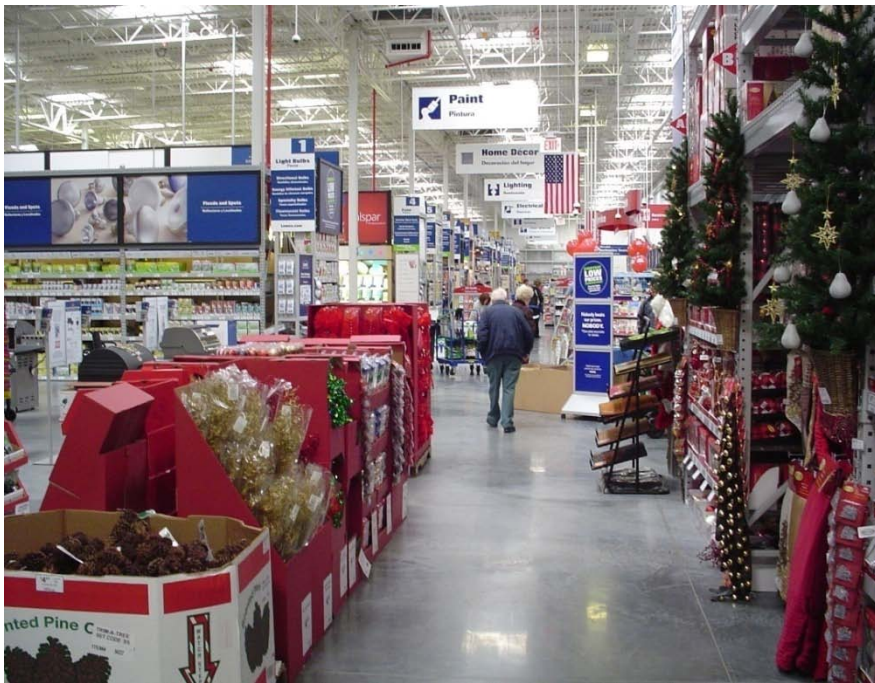
What Were the Retailer Concerns?

Separating the Pretenders from the Contenders!

- **Assure product claims translate to life and lighting performance**
 - If the supplier's products fall into one of the two programs, listed below, the products must be **ENERGY STAR® qualified**
 - ENERGY STAR Solid-State Lighting Luminaire Program
 - ENERGY STAR Integral LED Lamps Program
 - Solid-State Lighting Quality Assurance Program participation
 - The product must have an approved ***Lighting Facts Label***
 - Other minimum product specifications
 - ***LM-79 Test***: Provide ***independent*** testing according to IES LM-79 that provides efficacy, output, color, and photometric distribution of your product
 - ***IES File***: Provide ***absolute*** photometric testing data in IES LM-63 electronic file format
 - ***Proof of Lifetime***: Provide written explanation of how L70 Lifetime of Product is determined using the ***LM-80 and in-situ temperature tests***

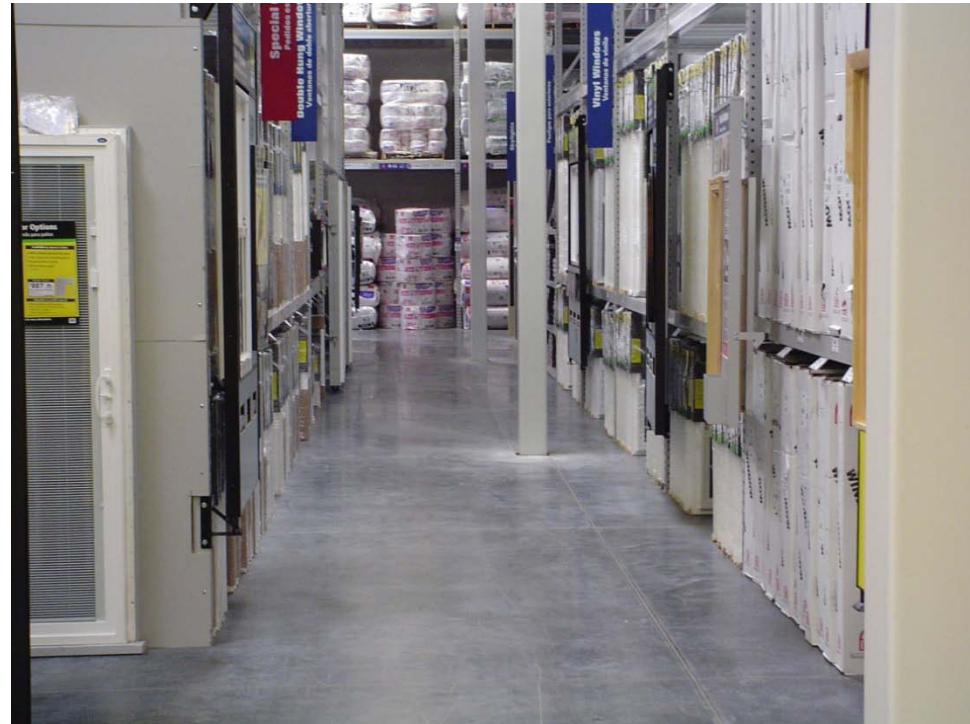
- **SSL warranties should not be vague**
 - Not “warranted for defects in materials and workmanship”
- **SSL warranties should be specific to product specifications**
 - Specify the warranted life — years and operational hours
 - Specify the warranted maximum lumen depreciation
 - Specify the warranted maximum warranted color shift
 - Specify what conditions constitute failure

Lowe's Daylighting Update: Daylighting Is Lighting



Pictures of Indian Trail lit
solely by skylights

Industry standard is to install 3–5% SFR;
Indian Trail has 4.7% daylighting



- In closing, remember
 - Lighting energy reduction is a major goal with retailers
 - Our needs for quality certified lighting/controls products are the same
 - Our applications are not the same — know the retailers' needs
- Learn more about each retailer needs, goals, and barriers/solutions to obtaining these goals during breakout sessions and “speed-dating”
- **THANK YOU!**